<u>Amendments to the Claims:</u>

This listing of claims will replace all prior version, and listings, of claims in this application:

<u>Listing of Claims</u>

Claims 1-19: cancelled

Claim 20 (new): A compact personal token, comprising:

a USB-compliant interface releaseably coupleable to a host processing device operating under command of an operating system;

a smartcard processor having a smartcard processor-compliant interface for communicating according to a smartcard input and output protocol; and

an interface processor, communicatively coupled to the USB-compliant interface and to the smartcard processor-compliant interface, the interface processor implementing a translation module for interpreting USB-compliant messages into smartcard processor-compliant messages and for interpreting smartcard processor-compliant messages into USB-compliant messages.

Claim 21 (new): The apparatus of claim 20, wherein the interface processor emulates a smartcard reader to the smartcard processor.

Claim 22 (new): The apparatus of claim 20, wherein the host processing device comprises a virtual smartcard reader in communication with the operating system, the virtual smartcard reader for emulating a smartcard reader communicatively coupled to the host processing device and including a communication module for packaging messages for transmission to the personal token via the USB-compliant interface according to a first protocol and for unpackaging messages received from the personal token via the USB-compliant interface according to the first protocol; and

wherein the interface processor translation module unpackages messages from the host processing device according to the first protocol and packages messages destined for the host processing device according to the first protocol.

Claim 23 (new): The apparatus of claim 22, wherein the virtual smartcard reader further comprises a bootup module for responding to an operating system bootup procedure with an indication that a smartcard reader is communicatively coupled to the host processor.

Claim 24 (new): The apparatus of claim 22, wherein the virtual smartcard reader further comprises an answer-to-reset (ATR) module for providing an ATR message to the operating system in response to a reset message.

Claim 25 (new): The apparatus of claim 22, wherein the virtual smartcard reader further comprises a reporting module for receiving and reporting the insertion of the personal token in a USB-compliant port communicatively coupled to the host processor and the removal of the personal token as a removal of a smartcard from a smartcard reader.

Claim 26 (new): The apparatus of claim 22, wherein the virtual smartcard reader further comprises a protocol selection module for receiving a protocol type selection (PTS) command from the operating system and providing a PTS response message to the operating system.

Claim 27 (new): A host processing device, comprising:
a processor;
a memory, communicatively coupled to the processor, the memory storing processor operation commands implementing an operating system; and
a virtual smartcard reader module stored in the memory and in communication with the operating system, for emulating at least one smartcard reader to the operating system, the virtual smartcard reader module comprising a communication module for packaging smartcard-compliant commands for transmission to a personal token communicatively coupled to the host processor via a USB-compliant interface and for unpacking smartcard-compliant responses received from the personal token;
wherein the virtual smartcard reader comprises a bootup module for responding to an operating system bootup procedure with an indication that a smartcard reader is communicatively coupled to the host processor.

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Claim 28 (new): The apparatus of claim 27, further comprising an answer-to-reset (ATR) module providing an ATR message to the operating system in response to a reset message.

Claim 29: (new): The apparatus of claim 27, wherein the virtual smartcard reader further comprises a reporting module for receiving and reporting the insertion of a personal token in a USB-compliant port communicatively coupled to the host processor and the removal of the personal token as a removal of a smartcard from a smartcard reader.

Claim 30 (new): The apparatus of claim 27, wherein the virtual smartcard reader further comprises a protocol selection module for receiving a protocol type selection (PTS) command from the operating system and providing a PTS response message to the operating system.

Claim 31 (new): A method of communicating with a smartcard processor in a personal key communicatively coupled to a host computer via a USB-compliant interface, comprising the steps of:
    accepting a message comprising a smartcard reader command selected from a smartcard reader command set from a host computer operating system in a virtual smartcard reader;
    packaging the message for transmission via a USB-compliant interface according a first message transfer protocol;
    transmitting the packaged message to a personal key communicatively coupled to the USB-compliant interface;
    receiving the packaged message in the personal key,
    unpackaging the message in the personal key to recover the smartcard reader command; and
    translating the smartcard reader command into a smartcard command within the personal key; and
    providing the smartcard command to the smartcard processor.

Claim 32 (new): The method of claim 31, further comprising the steps of:
    accepting a smartcard response from the smartcard processor;
    translating the smartcard response into a smartcard reader response;

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packaging the smartcard reader response for transmission to the host processor via the USB-compliant interface;

transmitting the packaged message from the personal key to the host processor;

receiving the packaged message in the host computer;

unpackaging the smartcard reader response; and

providing the smartcard reader response to the host processor operating system.

Claim 33 (new): The method of claim 31, further comprising the steps of:

accepting a startup query from the host computer operating system in the virtual smartcard reader; and

providing an indication that a smartcard reader is communicatively coupled to the host computer operating system.

Claim 34 (new): The method of claim 33, further comprising the steps of:

receiving an indication that the personal key has been communicatively coupled to the USB-compliant interface,

reporting the indication that the personal key is communicatively coupled to the USB-compliant interface to the host processor operating system as the insertion of a smartcard;

receiving an indication that the personal key has been communicatively decoupled from the USB-compliant interface; and

reporting the indication that the personal key has been communicatively decoupled from the USB-compliant interface to the host processor operating system as the removal of the smartcard.

Claim 35 (new): The method of claim 31, further comprising the steps of:

receiving a protocol type selection (PTS) command from the host computer operating system; and

providing a PTS response message to the operating system.

<u>Amendments to the Claims:</u>

This listing of claims will replace all prior version, and listings, of claims in this application:

<u>Listing of Claims</u>

Claims 1-19: cancelled

Claim 20 (new): A compact personal token, comprising:

a USB-compliant interface releaseably coupleable to a host processing device operating under command of an operating system;

a smartcard processor having a smartcard processor-compliant interface for communicating according to a smartcard input and output protocol; and

an interface processor, communicatively coupled to the USB-compliant interface and to the smartcard processor-compliant interface, the interface processor implementing a translation module for interpreting USB-compliant messages into smartcard processor-compliant messages and for interpreting smartcard processor-compliant messages into USB-compliant messages.

Claim 21 (new): The apparatus of claim 20, wherein the interface processor emulates a smartcard reader to the smartcard processor.

Claim 22 (new): The apparatus of claim 20, wherein the host processing device comprises a virtual smartcard reader in communication with the operating system, the virtual smartcard reader for emulating a smartcard reader communicatively coupled to the host processing device and including a communication module for packaging messages for transmission to the personal token via the USB-compliant interface according to a first protocol and for unpackaging messages received from the personal token via the USB-compliant interface according to the first protocol; and

wherein the interface processor translation module unpackages messages from the host processing device according to the first protocol and packages messages destined for the host processing device according to the first protocol.

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Claim 23 (new): The apparatus of claim 22, wherein the virtual smartcard reader further comprises a bootup module for responding to an operating system bootup procedure with an indication that a smartcard reader is communicatively coupled to the host processor.

Claim 24 (new): The apparatus of claim 22, wherein the virtual smartcard reader further comprises an answer-to-reset (ATR) module for providing an ATR message to the operating system in response to a reset message.

Claim 25 (new): The apparatus of claim 22, wherein the virtual smartcard reader further comprises a reporting module for receiving and reporting the insertion of the personal token in a USB-compliant port communicatively coupled to the host processor and the removal of the personal token as a removal of a smartcard from a smartcard reader.

Claim 26 (new): The apparatus of claim 22, wherein the virtual smartcard reader further comprises a protocol selection module for receiving a protocol type selection (PTS) command from the operating system and providing a PTS response message to the operating system.

Claim 27 (new): A host processing device, comprising:
a processor;
a memory, communicatively coupled to the processor, the memory storing processor operation commands implementing an operating system; and
a virtual smartcard reader module stored in the memory and in communication with the operating system, for emulating at least one smartcard reader to the operating system, the virtual smartcard reader module comprising a communication module for packaging smartcard-compliant commands for transmission to a personal token communicatively coupled to the host processor via a USB-compliant interface and for unpacking smartcard-compliant responses received from the personal token;
wherein the virtual smartcard reader comprises a bootup module for responding to an operating system bootup procedure with an indication that a smartcard reader is communicatively coupled to the host processor.

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Claim 28 (new): The apparatus of claim 27, further comprising an answer-to-reset (ATR) module providing an ATR message to the operating system in response to a reset message.

Claim 29: (new): The apparatus of claim 27, wherein the virtual smartcard reader further comprises a reporting module for receiving and reporting the insertion of a personal token in a USB-compliant port communicatively coupled to the host processor and the removal of the personal token as a removal of a smartcard from a smartcard reader.

Claim 30 (new): The apparatus of claim 27, wherein the virtual smartcard reader further comprises a protocol selection module for receiving a protocol type selection (PTS) command from the operating system and providing a PTS response message to the operating system.

Claim 31 (new): A method of communicating with a smartcard processor in a personal key communicatively coupled to a host computer via a USB-compliant interface, comprising the steps of:

accepting a message comprising a smartcard reader command selected from a smartcard reader command set from a host computer operating system in a virtual smartcard reader;

packaging the message for transmission via a USB-compliant interface according a first message transfer protocol;

transmitting the packaged message to a personal key communicatively coupled to the USB-compliant interface;

receiving the packaged message in the personal key,

unpackaging the message in the personal key to recover the smartcard reader command; and

translating the smartcard reader command into a smartcard command within the personal key; and

providing the smartcard command to the smartcard processor.

Claim 32 (new): The method of claim 31, further comprising the steps of:

accepting a smartcard response from the smartcard processor;

translating the smartcard response into a smartcard reader response;

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packaging the smartcard reader response for transmission to the host processor via the USB-compliant interface;

transmitting the packaged message from the personal key to the host processor;

receiving the packaged message in the host computer;

unpackaging the smartcard reader response; and

providing the smartcard reader response to the host processor operating system.

Claim 33 (new): The method of claim 31, further comprising the steps of:

accepting a startup query from the host computer operating system in the virtual smartcard reader; and

providing an indication that a smartcard reader is communicatively coupled to the host computer operating system.

Claim 34 (new): The method of claim 33, further comprising the steps of:

receiving an indication that the personal key has been communicatively coupled to the USB-compliant interface,

reporting the indication that the personal key is communicatively coupled to the USB-compliant interface to the host processor operating system as the insertion of a smartcard;

receiving an indication that the personal key has been communicatively decoupled from the USB-compliant interface; and

reporting the indication that the personal key has been communicatively decoupled from the USB-compliant interface to the host processor operating system as the removal of the smartcard.

Claim 35 (new): The method of claim 31, further comprising the steps of:

receiving a protocol type selection (PTS) command from the host computer operating system; and

providing a PTS response message to the operating system.